

Social Impact Assessment of Binhai LNG Project-- Based On Questionnaire

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Abstract

Jiangsu is a province with scarce energy resources. Binhai LNG project will guarantee the supply of clear energy and ease the shortage situation in the middle and north Jiangsu province. The project can greatly increase the GDP and prompt the development of Binhai county, it can also improve the local revenue and motivate the development of relative industries. From various stakeholders, government departments of the various cities and counties and relevant enterprises have a positive attitude on LNG.

Keywords

Binhai LNG Project; Social Impact; Assessment; Questionnaire

Introduction

Liquefied natural gas (LNG), as a clean, efficient, convenient, safe energy, has become one of the high quality energy which is selected by citizens in modern society because of its high calorific value, less pollution, convenient storage and transportation (Huang Jiancheng, 2006). Jiangsu Binhai LNG project, with total investment of ¥12 billion, is composed of LNG terminal, pipeline network, gas-fired power plants and other subprojects. LNG terminal is planned to be put into operation in 2014 and will reach the output of 3.44 billion m³ per year, the supply capacity will be 2.6 million ton per year in 2016; conventional LNG terminal will be put into operation in 2016 and reach 80 billion m³ per year, the supply capacity will be 600 million ton per year in 2020. The gas pipeline network project includes two phases: a main gas line from Binhai station to Huai'an distribution stations, an additional two gas pipelines to Lianyungang, to Taizhou from Yancheng. Around the gas pipeline network construction, six gas-fired power plants will be planned, named Northern Jiangsu Huaneng Group Lianyungang gas power plant, Huaneng Group Huai'an Lianshui gas power plant, the Datang Group Dafeng City cogeneration plants, Xinghua City

cogeneration plants, in the region Datang Group, Datang Group Taixing cogeneration plants, Huadian Group Yangzhou gas power plant respectively. The power plants are expected to put into operation during 2014-2016.

The direct area of social influence refers to the direct coverage area of a pipe network of the LNG project, including Yancheng, Huai'an, Taizhou and Lianyungang. Potential area of project social impact refers to the surrounding areas covered by the second phase LNG pipe network project, including southern Jiangsu, Anhui, Henan and Shandong.

In order to acquire the basic situation of the affected area, random sampling method was adopted to understand the social impact degree and attitude of local government and residents of LNG project. The LNG project survey area includes Binhai, Huai'an, Taizhou, and Lianyungang, and collected questionnaires is 228 (table 1), which covers a broad and representative society groups in different gender, different ages, occupations and income.

Social impact groups and effect of project

1) Affected Groups

There are multiple stakeholders and diverse interest demands in direct and indirectly affected region of the LNG project. Using stakeholder theory-depth analysis of different stakeholders, especially key stakeholders, is the scientific basis for the development of relevant policies and measures and foothold (Chen Li, 2005).

According to the survey, 19 stakeholders were identified and determined the respective stakeholder (table 2), power influence and stakeholder were classified and evaluated. Finally, the attitude of the project was given score (table 3).

TABLE 1 QUESTIONNAIRES ON BASIC SITUATION OF RESIDENTS' SURVEY

	Basic Information	Samples	Percentage (%)
Gender	Male	148	64.9
	Female	80	35.1
Age	Below 20	35	15.4
	21-30	57	25
	31-40	93	40.8
	41-50	108	47.4
	51-60	30	13.2
	Above 60	19	8.3
occupation	Scientific Staffs	6	2.6
	government officials	84	36.8
	Corporate workers	20	8.8
	Teacher	17	7.5
	Student	20	8.8
	Peasants	18	7.9
	Workers	27	11.8
	Individual producer or trader	19	8.3
	Professional	11	4.8
	Others	6	2.6

TABLE 3 THE TYPES OF BINHAI LNG PROJECT STAKEHOLDERS

	Strong influence	Medium influence	Weak influence
High Interest Correlation	1.CNOOC shareholders 8.local government 10. financial institutions 12. Petroleum Group 19. Sinopec Group	13.local gas company 14. coal enterprises 16. natural gas suppliers	6..demolition land acquisition residents
Medium Interest Correlation		5. Industrial Park 7. salt plant	3. gas residents 4. local communities 17.transport companies
Low Interest Correlation	11.China Power Investment Group	9. news media	2. CNOOC employees 15. local employment

TABLE 2 ANALYSIS OF BINHAI LNG PROJECT STAKEHOLDERS

No.	Stakeholders	Interest	Power influence	Correlation of interest	Attitude
1	CNOOC shareholders	Investment income	strong	high	1
2	CNOOC employees	Stable wage and employment	weak	low	1
3	Gas residents	Inexpensive	weak	medium	1
4	Local community	Living environment	weak	medium	-1
5	Industrial park enterprises	Stable gas and price	medium	medium	1
6	Demolition and land acquisition residents	Compensation standards, in a timely manner	weak	high	-1
7	Salt fields	Shares of port development	medium	medium	1
8	Local government	Taxes and employment	strong	high	1
9	News media	Information exchange	medium	low	1
10	Financial institutions	Safety and recyclability	strong	high	1
11	China Power Investment Group	Mutual benefit	strong	low	0
12	CNPC	Market share	strong	high	0
13	Local gas company	Reduce cost	medium	high	1
14	Coal enterprises	Market share	medium	high	-1
15	Local employment	Income	weak	low	1
16	Supplier of natural gas	Gas prices and market	medium	high	1
17	Transport companies	Gas price and exhaust	weak	medium	1
18	Petro China West-East	Gas prices and market	strong	high	0
19	Sinopec Group	Market share	strong	high	0

Note: (1) influence power was divided into strong, medium, weak; stakeholders were divided into high, medium and low;

(2) Score of project attitude, -1 represents opposition, 0 represents neutral or undecided attitude, 1 represents support.

2) Social Effects

Binhai LNG has given rise to the following social effects:

Employment increasing

The LNG terminal is a highly technical project, except a small number of running management staff (less than one thousand), there are less support staff and temporary jobs. But with the development of LNG cold energy use project, which is directly related to LNG project, including cold energy of air separation,

crushed rubber, desalination, food freezers, ice and snow tourism, more employment opportunities will be created.

Social Security

Construction of LNG project will significantly improve the region's infrastructure conditions and provide water, electricity supply, and convenient transportation for the project site. LNG project has perfect health, health care, education and other supporting facilities, which can be shared with neighboring residents. The project will improve local fiscal conditions and it is

benefit for local governments increasing investment in local people's livelihood, improving the living environment and construction of civilized communities, and promoting harmonious society development.

Workforce training

As the principal investor, CNOOC (China National Offshore Oil Corporation) Group has high academic qualifications of senior management personnel and high-tech talent, high quality staff, good management system. Further the modern enterprise management has been on the stage of cultural management. Staff training is an important part of CNOOC enterprise culture building. Moreover human resources training of Binhai LNG project will play a good role in local corporate culture, corporate management, and workforce training.

LNG Project Social Impact Questionnaire

- The willingness of the residents to use natural gas. The questionnaire shows people using natural gas as fuel account for 86.0%, only 6.1% of people don't use natural gas, and the indifferent attitude is only 7.9%. So, local residents have a strong willingness to use natural gas, and keep a welcoming attitude.
- Impact survey of improving local investment environment. Questionnaire shows that respondents who think it can significantly improve the local investment environment account for 36.8%, and respondents who think more significant impact is about 36.0%, both of them account for 72.8%. Therefore, most local residents are optimistic about the Binhai LNG project. 13.2% of respondents do not know much about the impact of the project on the investment environment. It shows that publicity for the optimization of the local investment environment of Binhai LNG project needs to be strengthened.
- Impact survey of increasing local tax. Questionnaire shows respondents who think Binhai LNG project can be significant or more significant increase local fiscal revenue, account for 51.7%. While respondents who believe impact is general account for 34.2%, and who do not understand account for 11.48%. Overall, more than half of respondents think that Binhai LNG project has a significant contribution to local development and local tax.
- Influence on local employment survey. The questionnaire shows respondents who think LNG project can significantly increase local jobs, account for 29.8%, the relatively significant impact, account for 21.1%, both of them account for 50.9%. It shows that Binhai LNG project brought jobs to the local residents, and most people are still very expected. Respondents who think it has little impact on local employment are up to 40.4% in the survey. The reason is that qualifications and professional skills of staff in Binhai LNG project is relatively high and it will affect the local employment. Therefore, after construction of Binhai LNG project, it is recommended that certain recruitment should be reserved for local residents. So local employees occupy a certain proportion and it increase opportunity to participate in the work and management of the enterprise for local residents, and improve the recognition of local residents.
- Investigation of the impact on the income of local residents. The questionnaire shows that respondents who think it can significantly increase local revenue accounted for only 7%, who think it have a more significant impact is 41.2%, both account for 48.2% of the respondents. It shows that local residents are not very optimistic about income from Binhai LNG project because of the relatively high threshold of jobs.
- Influence of increasing cost of living of local residents. The questionnaire shows that respondents who think it significantly save cost account for 14.9%, who think it can relatively save cost is 44.7%, both of them account for 59.6%. Compared with natural gas and liquefied petroleum gas, the price advantage is obvious, and it will be benefit for local residents to save the cost of living.
- Influence of improving the infrastructure. Questionnaire shows that respondents who think Binhai LNG project can significantly or relatively significantly improve the condition of local infrastructure account for 59.6%, who think the impact is general account for 25.4%, and who think no impact is only 6.1%. Overall, more than half of respondents think that Binhai LNG project will have a significant contribution to improve the infrastructure.

LNG project environmental impact survey

- Influence of reducing environmental pollution. Questionnaire shows that respondents who think Binhai LNG project can significantly and more significantly improve local social environment account for 38.6%, who believe that the impact is general account for 36.0%, and who consider no impact account for 21.1%. Overall, one-third of the respondents believed that it has a significant impact on environmental pollution, but also it shows that it is lack of knowledge of good project effectiveness social environment.
- Reducing coal and fuel consumption. The questionnaire shows that respondents who think project can significantly and more significantly reduce coal and fuel consumption is 71.9%, who think the impact is general account for 21.9%, and who think no affection is only 1.8%. Therefore, this project will effectively reduce coal and fuel consumption, and project is widely recognized by local public. Enterprise of using gas instead of coal, gas instead of oil, gas instead of oil of cars, will be beneficial to the local environment to improve the quality and reduce the cost of living, improve the people's livelihood and environment.
- The impact survey of destruction of local vegetation. The questionnaire shows that
- respondents who think Binhai LNG project will significantly undermine the local vegetation is only 6.1% , who think it has a certain influence account for 21.1%, who think general influence is 46.5%, and who do not know account for 21.1%. Most of respondents believed that Binhai LNG project will have a little damage effect of local vegetation. Because the project site mainly occupied coastal mudflats and salt field, far away from residential areas and densely populated areas, it has little effect on the local vegetation.
- Safety investigation of LNG project's gas pipeline. The questionnaire shows that respondents who think Binhai LNG project's gas pipeline is safe, account for only 9.6%, and who think security is relatively safe high is 36.8%, who think it is general account for 38.6%, and who think safety is lower is less than 15%. Overall, the proportion of overestimation and low evaluation of the gas pipeline security is not high. It shows that local residents trust on the pipeline security, especially for product quality and reputation of the large state-owned enterprises.
- Influence of local heritage buildings of LNG. The questionnaire shows that respondents who think Binhai LNG project will significantly affect local heritage buildings account for only 1.8%, who think it has a certain influence account for 12.3%, both of them accumulate less than 15%, who think it is general influence account for 43.0%, and who think no influence is 10.5%,and respondents who do not know heritage of buildings account for 32.5%. Overall, residents think that the LNG project has little effect on the local heritage buildings. In fact, Binhai LNG project site was planned in the coastal mudflats and salt field, pipeline laying process can effectively avoid the building heritage.
- Influence of local customs of LNG project. The questionnaire shows that respondents who think Binhai LNG project will significantly affect the local customs account for 15.8%, who think relatively significant is 26.3%, both of them is 42.1%, who think general impact is 31.6%, and who think no effect is 7.9%. Overall, it exits worry tendency of local residents. Local customs maintain the criterion of the local residents, construction and operation of the LNG project, bring a considerable number of foreign people, to some extent, affect the local customs and social order. So, it needs to be concerned about social management.
- Influence of improving the living conditions of LNG project. The questionnaire showed that respondents who think that Binhai LNG project will significantly improve the living conditions account for 16.7%, and who think it more significantly improve local living conditions is 42.1%, both of them is as high as 58.8%. Respondents who think a general effect account for 17.5%, and who think it has no effect account for 19.3%. Overall, Binhai LNG project will be more significantly improve local living conditions, and it is acquired most favor.
- Demolition investigation caused by LNG project. The project mainly involves the laying of the pipeline, with smaller amount of demolition and involved small surface. The questionnaire shows that 73.5% of the respondents are willing to tie in with Binhai LNG project demolition work, but 15% of the respondents have clash view on demolition, and 11.5% of the respondents have an

indifferent attitude. Overall, the relocation of Binhai LNG project will get the understanding and cooperation of the vast majority of residents. It should be cautious and properly handle the demolition contradict tendencies, as well as the attitude of rocking minorities.

The project involves less demolition and land acquisition task, but local residents were still concerned about it in the research. The questionnaire revealed that the income source of family life is the primary concern of the respondents, taking up 43.9% of the total sample. The second is lower compensation, and it accounts for 32.5%. Respondents worried about timely compensation account for 23.7% and this is a very real problem. This is also the problem of people's livelihood, and it should be given sufficient attention and properly resolve by local government.

The attitudes and participation of benefits-related in LNG project

According to the survey, the attitude and participation of is as follows:

1) Key stakeholders

CNOOC shareholders: support and actively participate in the project construction;

Local government: support and actively participate in the project construction;

Financial institutions: support and actively participate in the project construction;

Local Gas Company: support the diversification of gas sources, and a strong willingness to cooperation;

Petroleum Group: existence of market competition;

Coal enterprises: existence of market competition;

China Power Investment Group: weak cooperation willingness, awareness of potential competition.

Natural gas suppliers: active participation in projects; existence of the risk of price fluctuations in the international market.

2) Primary stakeholders

Industrial Park: a strong willingness of cooperation should capture the market from large projects to start.

Salt fields: a strong willingness of cooperation and support, supporting the project construction;

Demolition land acquisition residents: potential conflicts and risks, particularly those involving the demolition compensation and pipeline through farmland compensation. Binhai pipeline may cause the demolition, higher than potential conflict and risk in Huai'an and Taizhou.

3) Secondary stakeholders

Gas residents: support, the price of gas is the key. The market of completed residential zone has been in the oil occupy. So, it exits the risk of direct conflict between the existence of the gas market and the CNPC.

Local communities: weak cooperation willingness, encourage project participant in the construction of community infrastructure;

Staff: support, mainly college graduates;

Local employment: the project should be given to support local requirements employment by a certain percentage of the total employees.

News Media: cooperation, enhance the corporate image and local soft investment environment.

Transportation Company: support, a strong willingness to cooperate. Taxi using gas has been achieved; trucks (especially long-haul trucks) and cargo ships are the potential market.

Conclusions

In conclusion, Binhai LNG project will promote the development of related industries and increase employment. With development of the LNG joint industry, it will be a positive impact in local workforce training, health care, community services, and social security. From various stakeholders, government departments of the various cities and counties and relevant enterprises have a positive attitude on LNG. Combined with computational analysis, LNG project is benefit for region's GDP(gross domestic product) growth, the local fiscal revenue, increasing jobs, and improving energy structure. Moreover, it has acquired the welcome and support of local government.

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